Wyoming Judicial Retirement System

Actuarial Valuation Report
for the Year Beginning January 1, 2018

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April 6, 2018

Board of Trustees
Wyoming Judicial Retirement System
6101 Yellowstone Road
Suite 500
Cheyenne, WY 82002

Dear Board of Trustees:

Subject: Actuarial Valuation as of January 1, 2018

We are pleased to present the report of the actuarial valuation of the Wyoming Judicial Retirement System ("the Fund") for the plan year commencing January 1, 2018. This report describes the current actuarial condition of the Fund, determines the calculated employer contribution rate (the actuarially determined contribution rate), and analyzes changes in this contribution rate from the prior year. Valuations are prepared annually, as of January 1, the first day of the Fund's plan year.

Financing objectives and funding policy

The employer and employee contribution rates are specified in the statute. The purpose of this actuarial valuation is to determine whether or not this statutory contribution is sufficient to meet the obligations of the Fund.

Progress toward realization of financing objectives

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) is a standard measure of a plan's funded status. The funded ratio as of January 1, 2018 is 99.92%. This funded ratio is based on the assumption that no future cost-of-living increases will be paid. In the January 1, 2017 valuation, this funded ratio was 109.46%. On a market value of assets basis, the funded ratio decreased from 103.81% as of January 1, 2017, to 100.73% as of January 1, 2018. The funded status alone is not appropriate for assessing the need for future contributions. The funded status is also not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.

Benefit provisions

The benefit provisions reflected in this valuation are those which were in effect on January 1, 2018. W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change. Therefore, this valuation does not include any liability for future cost increases. There were no benefit changes since the prior valuation.

The benefit provisions are summarized in Appendix B of the report.

Assumptions and methods

Actuarial assumptions and methods are set by the Board, based upon recommendations made by the plan's actuary. The current assumptions used in the actuarial valuation were adopted by the Board effective August 23, 2017 and were first utilized with the January 1, 2018 valuation report. For a detailed description of the experience related to these assumptions, as well as the rationale for any changes, please see our latest Wyoming Retirement System Actuarial Experience Study Report. Our experience study report was dated January 10, 2018 and it covered the five-year investigation period ending December 31, 2016.

Below is a summary of the changes in assumptions:

1. **Inflation**: reduce the current assumption of 3.25% to 2.25%.

2. **Real rate of return**: increase the current assumption from 4.50% to 4.75%.

3. **Nominal rate of return**: decrease the nominal investment return assumption (the sum of inflation and the real rate of return) from 7.75% to 7.00%.

4. **Wage inflation**: reduce the wage inflation assumption from 4.25% to 2.50%.

5. **Payroll growth**: reduce the assumed growth in total payroll from 4.25% to 4.00%.

6. **Administrative expenses**: recommend reducing the assumed annual increase in expenses from 6.50% per year to 2.50%.

7. **Post-retirement mortality**, **disabled lives mortality, active life mortality**: update to the RP2014 table, projected generationally using MP 2017.

8. **Salary increase:** increase assumption of 3.75% per year will increase to 4.00% per year

The assumption changes increased the accrued liability by $2.3 million.

The results of the actuarial valuation are dependent upon the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods. The actuarial calculations presented in the report are intended to provide information for rational decision making.

The 14.50% employer contribution and the 9.22% employee contribution are the rates that comply with State law. Due to the many factors affecting a retirement system, users of this report should be aware that contributions made at that rate do not necessarily guarantee long-term benefit security.

The employer contribution requirement in Table 1 of this report is determined using the actuarial assumptions and methods disclosed in Appendix A of this report. This report does not include a detailed assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment. We encourage a review and assessment of investment and other significant risks that may have a material effect on the plan's financial condition.

All assumptions and methods are described in Appendix A of the report.

Data

Member data for retired, active and inactive members was supplied as of January 1, 2018 by the Fund's staff. We did not audit this data, but we did apply a number of tests to the data, and we concluded that it was reasonable and consistent with the prior year's data.

Asset and financial information as of January 1, 2018 was prepared by Wyoming Retirement System and is the responsibility of management. Eide Bailly, LLP provided us the asset and financial information and will opine on Wyoming Retirement System's statements.

Plan experience

As part of each valuation, we examine the Fund's experience relative to the assumptions. As experience in a given year deviates from the assumptions, a gain occurs if the liabilities grow slower than the assumption set anticipates and a loss occurs if the liabilities grow faster. Overall, the Fund had a total experience loss of $113,787 including an investment loss of $158,108, a contribution gain of $414,010 and a liability loss of $369,688. The aggregate results of these analyses are disclosed in Tables 4 and 5 under Section III of the report.

Actuarial certification

All of the tables contained in this actuarial valuation report were prepared by Gabriel, Roeder, Smith & Company. Historical information for years prior to 2010 was prepared by the prior actuarial firm and was not subjected to our actuarial review. We certify that the information presented herein is accurate and fairly portrays the actuarial position of the Fund as of January 1, 2018.

All of our work conforms with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of state law and, where applicable, the Internal Revenue Code and ERISA. The undersigned are independent actuaries and consultants. Mark Randall and Leslie Thompson are Enrolled Actuaries and Mark Randall, Leslie Thompson, and Paul Wood are Members of the American Academy of Actuaries, and all three meet all the Qualification Standards of the American Academy of Actuaries.

Finally, all of the undersigned are experienced in performing valuations for large public retirement systems.

Respectfully submitted,

Gabriel, Roeder, Smith & Company

Mark R. Randall

Mark R. Randall, FCA, EA, MAAA
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Table of Contents

SECTION I

EXECUTIVE SUMMARY

Executive Summary

Item	January 1, 2018 No COLA	January 1, 2017 No COLA
1. Contributions:		
a. Total normal cost	22.14%	19.06%
b. Employee contributions	(9.22%)	(9.22%)
c. Net employer normal cost	12.92%	9.84%
d. Amortization payment	0.03%	(1.98%)
e. Administrative expenses	0.39%	0.35%
f. Required contribution	13.34%	8.21%
g. Statutory	(14.50%)	(14.50%)
h. Shortfall/(surplus)	(1.16%)	(6.29%)
2. Funding Elements:		
a. Market value of assets (MVA)	$29,299,924	$25,391,547
b. Actuarial value of assets (AVA)	$29,062,780	$26,773,208
c. Actuarial accrued liability (AAL)	$29,087,091	$24,459,333
d. Unfunded/(overfunded) actuarial accrued liability	$24,311	($2,313,875)
3. Contributions and Ratios:		
a. Annual required contribution	$909,557	$543,468
b. Actual contributions	N/A	949,300
i. Employer	*N/A*	*949,263*
ii. Other	*N/A*	*37*
c. Percentage contributed	N/A	174.67%
d. Funded ratio on an actuarial basis (AVA/AAL)	99.92%	109.46%
e. Funded ratio on a market basis (MVA/AAL)	100.73%	103.81%
f. Covered payroll	$6,820,351	$6,625,476

SECTION II

DISCUSSION

Contribution Requirements

- Exhibits throughout this report are based primarily, unless stated otherwise, on the assumption of no future cost-of-living adjustments (COLAs).
- W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change. The actuarial value funded ratio is 99.92% and the market value funded ratio is 100.73%.
- The actuarial assumptions have been updated since the prior valuation. For a detailed description of the experience related to these assumptions, as well as the rationale for any changes, please see our latest Wyoming Retirement System Actuarial Experience Study Report.
- The amortization payment is based upon the following assumptions:
  - 15-year closed funding period
  - Contribution amounts are calculated in such a way that they will increase as a level percentage of payroll
  - Total payroll increases are assumed at 4.00% per year
  - Future growth in the number of active members is not reflected in the annual valuation
- Analysis of the change in contribution rates is shown in Table 5 under Section III of the report.

Calculation of Contribution Rates

The funds available to pay benefits come from two sources, contributions and investment income on those contributions (the majority of the funds available to pay benefits typically come from investment income). The Fund receives contributions from two sources, employer contributions and member contributions, both of which are determined as a percentage of pay. As shown in Table 1 under Section III of the report, the employer contribution rate has three components:

- The normal cost percentage (NC%)
- The amortization percentage (UAAL%)
- The administrative expenses

The NC% is the theoretical amount which would be required to pay the members' benefits if this amount had been contributed from each member's entry date and if the fund's experience exactly followed the actuarial assumptions. The NC% is shown in Table 3 under Section III of the report.

Members are required to make employee contributions and only the excess of the NC% over the member contribution rate is included in the employer contribution rate.

The actuarial accrued liability (AAL) is the difference between (i) the actuarial present value of all future benefits for all current participants of the fund, including active, inactive and retired members, and (ii) the actuarial present value of future normal costs. Thus, the AAL represents the liability associated with past years. The unfunded actuarial accrued liability (UAAL) is the difference between the AAL and the actuarial value of assets (AVA). It is the shortfall/excess between the liability associated with prior years (the AAL) and the assets actually accumulated (the AVA). This shortfall/excess can arise from several sources, including actuarial gains and losses which are caused by differences between actual experience and the plan's assumptions, changes to the plan's actuarial assumptions, and amendments to the benefit provisions.

The UAAL% is the amount required to fund this difference. It is the amount, expressed as a level percentage of payroll, necessary to amortize the UAAL. This amortization is over a period of 15 years beginning January 1, 2018. The Executive Summary shows the UAAL%, called Amortization Payment, compared to that of last year.

Administrative expenses are the average of the actual expenses for the prior two years, with each year projected at 2.50% to the valuation date.

The calculated rate is used in determining the contributions necessary to meet the Actuarially Determined Contribution for the twelve-month period beginning January 1, 2018. Note, however, that the employer contribution is set at 14.50% of payroll. Therefore, the Actuarially Determined Contribution will be fully contributed. This is detailed in the Executive Summary.

Financial Data and Experience

As of January 1, 2018, the Fund has a total market value of $29.3 million. Financial information was received from Eide Bailly, LLP.

Table 7 under Section III of the report shows a reconciliation of the market values between the beginning and end of 2017.

During 2017, the total investment return on the market value of assets (MVA) was 14.20%, as reported by Meketa Investment Group, Inc, as shown in Table 10 under Section III of the report.

In determining the contribution rates and funded status of the Fund, an actuarial value of assets (AVA) is used rather than the market value of assets. The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (or less than) expected investment income. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of administrative and investment expenses. An adjustment is made if the actuarial value is not within 20% of the Market Value. For any year following a year in which the 20% of market value adjustment was applied, the actuarial value is determined as if the adjustment was not applied in the previous year.

The development of the AVA is shown in Table 9 under Section III of the report. The AVA is $29.1 million. The AVA is 99.19% of the MVA as of December 31, 2017, compared to 105.44% last year. The difference between the AVA and the MVA is deferred gains and losses. As of January 1, 2017, the total deferred loss was $1,381,661. As of January 1, 2018, the total deferred gain was $237,144.

In addition to the market return, Table 10 also shows the return on the actuarial value of assets for the Fund. For 2017, this return was 7.16%. Because this is less than the assumed 7.75% investment return for the prior year, an actuarial loss occurred increasing the unfunded actuarial accrued liabilities of the fund by $0.2 million.

Member Data

Member data as of January 1, 2018 was supplied electronically by the Fund's staff. While we did not audit this data, we did perform various tests to ensure that it was internally consistent, consistent with the prior year's data, and was reasonable overall.

Table 15 under Section III of the report shows the number of members by category (active, inactive, retired, etc.) along with member statistics. Tables 16 through 23 show summaries of certain historical data and include membership statistics.

Total active member projected payroll increased 2.94% last year, compared with a 0.02% increase the prior year.

The change in payroll is significant because the methodology used in the valuation to amortize the unfunded actuarial accrued liability assumes a growing payroll into the future. If the payroll does not grow at the assumed 4.00% per year average, then the current amortization payments may be understated and the funding position of the Fund will not strengthen as assumed over time. Higher than expected payroll growth, however, has the opposite effect and the funded position of the Fund should trend upward. Table 5 under Section III of the report shows, for the past year, payroll for the plan increased less than expected.

Of the 47 active participants, 15 are eligible or will become eligible for normal retirement in 2018, and 15 are eligible or will become eligible for early retirement in 2018.

Benefit Provisions

Appendix B of the report includes a more detailed summary of the benefit provisions for the Fund. A brief summary is as follows:

- *Normal Retirement Eligibility*
  - Age 70, age 65 with four or more years of service, or age 60 with 20 or more years of service.
- *Normal Retirement Benefit*
  - One-twelfth of the Final Average Salary times the sum of the following:
    a) 4% for each of the first five years of service,
    b) 3% for each year from and including the sixth year through the fifteenth year of service,
    c) 2% for each year from and including the sixteenth year through the twentieth year of service,
    d) 1% for each year thereafter.
- *Early Retirement Eligibility and Benefit*
  - Age 55 with four or more years of service. Normal retirement benefit reduced five percent for each year of retirement prior to age 65.
- *Normal Form of Payment* is a monthly benefit for life. Upon death, 50% of the benefit continues to be paid to the beneficiary.
- *Employee Contributions* are required
  - 9.22% of pay.
- *Post-retirement Cost-of-Living Adjustments (COLAs)*
  - W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change.

There have been no changes to plan provisions since the prior valuation.

Actuarial Methods and Assumptions

Appendix A of the report includes a summary of the actuarial assumptions and methods used in this valuation. A few highlights are listed as follows:

- Costs are determined using the Entry Age Normal actuarial cost method, calculated as a level percentage of payroll.
- The unfunded actuarial accrued liability is amortized over a closed 15 year period as a level percent of payroll.
- The assumed annual investment return rate is 7.00%, with assumed inflation of 2.25%.
- Payroll is assumed to increase at 4.00% per year.
- Inactive vested participants are assumed to retire at age 65 or on the valuation date if over age 65.
- No benefit data is available for members entitled to deferred benefits. The present value of benefits expected to be paid to vested inactive non-retired members is approximated using the data provided.

The average future lifetime for current pensioners is 14.3 years.

The actuarial assumptions and methods were reviewed in detail as part of the 2017 Experience Study covering the five year period ending December 31, 2016. Please see Appendix A for a summary of the new assumptions.

GASB and Funding Progress

Governmental Accounting Standards Board Statement Number 67 (GASB 67) contains certain accounting requirements for the Fund. Schedules, notes and required supplementary information are provided under separate cover.

SECTION III

SUPPORTING EXHIBITS

Table 1

Calculation of Annual Required Contribution Rate

(Assumes No Future Cost-Of-Living Increases)

	Item		January 1, 2018	January 1, 2017
1.	Projected valuation payroll		$6,820,351	$6,625,476
2.	Present value of future pay		$54,025,173	$47,449,880
3.	Employer normal cost rate		12.92%	9.84%
4.	Actuarial accrued liability for active members			
	a.	Present value of future benefits for active members	$27,800,023	$24,238,459
	b.	Less: present value of future employer normal costs	(6,418,101)	(4,264,021)
	c.	Less: present value of future employee contributions	(4,981,121)	(4,374,879)
	d.	Actuarial accrued liability	$16,400,801	$15,599,559
5.	Total actuarial accrued liability for:			
	a.	Retirees and beneficiaries	$12,686,290	$8,859,774
	b.	Disabled members	-	-
	c.	Inactive members	-	-
	d.	Active members (Item 4d)	16,400,801	15,599,559
	e.	Total	$29,087,091	$24,459,333
6.	Actuarial value of assets (Table 9)		$29,062,780	$26,773,208
7.	Unfunded actuarial accrued liability (UAAL) (Item 5e - Item 6)		$24,311	($2,313,875)
8.	UAAL amortization period		15 years	15 years
9.	Assumed payroll growth rate		4.00%	3.75%
10.	Employer Contribution requirement			
	a.	UAAL amortization payment as % of pay	0.03%	-1.98%
	b.	Employer normal cost	12.92%	9.84%
	c.	Administrative expense	0.39%	0.35%
	d.	Contribution requirement (a + b + c)	13.34%	8.21%

Table 2

Cost Breakdown

(Assumes No Future Cost-Of-Living Increases)

Item	Present Value of Future Normal Costs (1)	Actuarial Accrued Liabilities (2)	Total Present Value of Benefits (3) = (1) + (2)
Age and service allowances based on total service and disability benefits likely to be rendered by present active members	$10,700,643	$15,703,923	$26,404,566
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	535,310	686,549	1,221,859
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	163,269	10,329	173,598
Benefits likely to be paid to vested inactive members	0	0	0
Benefits to be paid to members due refunds	0	0	0
Benefits to be paid to current retirees, disabled members, beneficiaries, and future beneficiaries of current retirees	0	12,686,290	12,686,290
Total	$11,399,222	$29,087,091	$40,486,313
Actuarial value of assets	0	29,062,780	29,062,780
Liabilities to be covered by future contributions	$11,399,222	24,311	$11,423,533

Table 3

History of Total Normal Cost

(Assumes No Future Cost-Of-Living Increases)

Fiscal Year Ending December 31	Total Normal Cost as Percent of Payroll
2007	15.24%
2008	14.76%
2009	18.45%
2010	19.05%
2011	18.88%
2012	18.94%
2013	19.03%
2014	19.10%
2015	19.14%
2016	19.07%
2017	19.06%
2018	22.14%

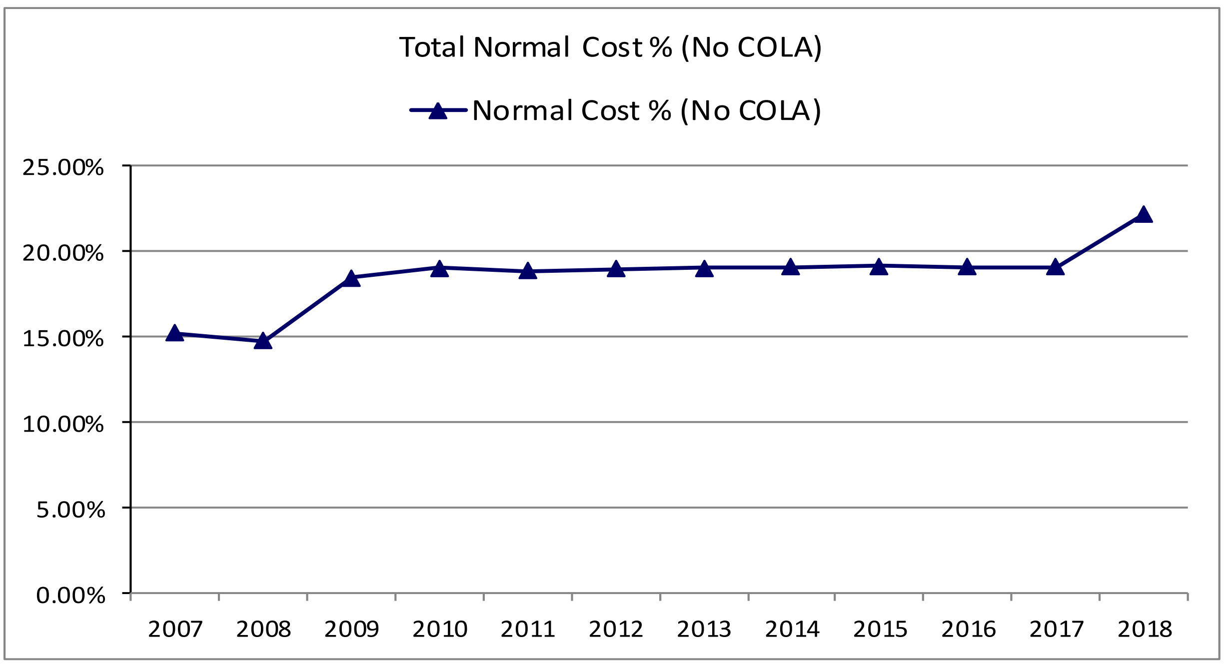

Table 4

Calculation of Total Actuarial Gain/(Loss)

(Assumes No Future Cost-Of-Living Increases)

Item	January 1, 2018
1. Derivation of Experience Gain/(Loss)	
a. Unfunded actuarial accrued liability (UAAL) - previous valuation	($2,313,875)
b. Normal cost (NC) for fiscal year ending December 31, 2017	1,262,612
c. Actual administrative expenses for fiscal year ending December 31, 2017	27,628
d. Actuarially determined contribution for fiscal year ending December 31, 2017	1,154,337
e. Interest accrual:	
(i) For whole year on (a)	(179,325)
(ii) For half year on (b) + (c) - (d)	5,266
(iii) Total interest: (e)(i) + (e)(ii)	(174,059)
f. Change in UAAL due to plan changes	-
g. Change in UAAL due to assumption change	2,262,555
h. Expected UAAL current year: (a) + (b) + (c) - (d) + (e)(iii) + (f) + (g)	(89,476)
i. Actual UAAL current year	24,311
j. Experience gain/(loss): (h) - (i)	(113,787)
k. Experience gain/(loss) as a % of actuarial accrued liability	-0.39%
2. Approximate Portion of Gain/(Loss) Due to Investments (at Actuarial Value)	($158,108)
3. Approximate Portion of Gain/(Loss) Due to Contributions higher or lower than expected	$414,010
4. Approximate Portion of Gain/(Loss) Due to Liabilities: (1)(j) - (2) - (3)	($369,688)
a. Age & service retirements	(552,884)
b. Disability retirements	797
c. Death-in-service	9,983
d. Withdrawal from employment	(14,936)
e. Rehires	-
f. Pay increases	430,022
g. Death after retirement	(133,488)
h. Other	(109,182)
i. Other as a % of actuarial accrued liability	-0.38%

Table 5

Change in Calculated Contribution Rate Since the Prior Valuation

(Assumes No Future Cost-Of-Living Increases)

Item	January 1, 2018
1. Calculated contribution rate as of January 1, 2017	8.21%
2. Change in contribution rate during year	
a. Change in employer normal cost	0.06%
b. Assumption changes	4.77%
c. Actuarial (gain) loss from investments on actuarial value of assets	0.14%
d. Actuarial (gain) loss from liability sources and administrative expenses	0.51%
e. Difference between contributions made and required contributions	-0.35%
f. Effect of payroll growing (slower)/faster than assumption	0.00%
g. Open amortization period reset to 15 years	0.00%
h. Other changes	0.00%
i. Total change	5.13%
3. Calculated contribution rate as of January 1, 2018	13.34%

Table 6

Statement of Plan Net Assets

Assets at Market Value		
Item	**FYE 2017**	**FYE 2016**
1. Cash and Cash Equivalents (Operating Cash)	$2,235,473	$2,647,104
2. Receivables		
a. Insurance premium tax	$0	$0
b. Buy backs	0	0
c. Employer contributions	0	77,164
d. Employee contributions	0	49,066
e. Securities sold	127,642	136,638
f. Accrued interest and dividends	43,143	45,323
g. Currency contract receivable	6,599,673	9,174,865
h. Other	16,103	0
i. Rebate and fee income receivable	0	0
j. Total receivables	$6,786,561	$9,483,056
3. Investments, at Fair Value	$28,993,925	$23,873,506
4. Liabilities		
a. Benefits and refunds payable	$0	$0
b. Securities purchased	(169,984)	(89,430)
c. Administrative and consulting fees payable	(60,368)	(28,241)
d. Currency contract payable	(6,631,754)	(9,086,702)
e. Securities lending collateral	(1,853,929)	(1,407,746)
f. Total liabilities	($8,716,035)	($10,612,119)
5. Total Market Value of Assets Available for Benefits	$29,299,924	$25,391,547

Table 7

Reconciliation of Plan Net Assets

Assets at Market Value		
Item	**FYE 2017**	**FYE 2016**
A. Market Value of Assets at Beginning of Year	$25,391,547	$23,202,291
B. Contribution Income:		
1. Contributions		
a. Employee	$603,602	$588,791
b. Employer	949,263	925,971
c. Other	37	0
d. Total	$1,552,902	$1,514,762
2. Investment Income		
a. Interest, dividends, and other income	$503,742	$488,997
b. Net appreciation	3,288,808	1,298,738
c. Investment expenses	(250,080)	(116,227)
d. Net investment income	$3,542,470	$1,671,508
3. Securities Lending		
a. Gross income	$24,045	$10,802
b. Deductions	(16,989)	(3,277)
c. Net investment income	$7,056	$7,525
4. Benefits and Refunds		
a. Refunds	$0	$0
b. Regular monthly benefits	(1,166,423)	(981,321)
c. Total	($1,166,423)	($981,321)
5. Administrative and Miscellaneous Expenses	($27,628)	($23,218)
C. Market Value of Assets at End of Year	$29,299,924	$25,391,547

Table 8

Progress of Fund Through December 31, 2017

Plan Year Ending December 31	Employer Contributions*	Employee Contributions	Administrative Expenses	Net Investment Income**	Benefit Payments	Transfers	Actuarial Value of Assets
Total	$ 18,237,288	$ 6,885,236	$ (164,911)	$ 13,585,437	$ (9,547,629)	$ -	
1998	-	-	-	-	-	-	$69,339
1999	$70,511	$41,294	($46)	$4,527	($48,428)	-	137,197
2000	1,403,023	170,858	(106)	52,516	(74,665)	-	1,688,823
2001	307,576	-	(484)	74,536	(184,433)	-	1,886,018
2002	1,290,324	216,131	(3,246)	63,349	(206,260)	-	3,244,316
2003	151,661	274,149	(927)	182,283	(214,508)	-	3,636,994
2004	1,259,619	273,016	(1,166)	316,906	(297,375)	-	5,187,994
2005	241,273	306,642	(1,910)	432,813	(283,480)	-	5,883,332
2006	4,662,777	326,237	(1,681)	799,836	(315,032)	-	11,355,469
2007	370,372	363,692	(7,127)	1,136,494	(391,685)	-	12,827,215
2008	1,308,816	396,872	(10,490)	(1,693,118)	(484,882)	-	12,344,413
2009	644,302	408,953	(4,821)	2,072,540	(573,483)	-	14,891,904
2010	663,375	421,815	(5,762)	560,518	(624,150)	-	15,907,700
2011	674,598	428,952	(9,217)	356,446	(610,572)	-	16,747,907
2012	610,039	344,893	(13,779)	569,056	(708,756)	-	17,549,360
2013	866,286	550,963	(17,037)	1,985,989	(674,750)	-	20,260,811
2014	916,598	582,831	(17,361)	1,761,194	(775,805)	-	22,728,268
2015	920,867	585,545	(18,905)	1,349,705	(931,621)	-	24,633,859
2016	925,971	588,791	(23,218)	1,629,126	(981,321)	-	26,773,208
2017	949,300	603,602	(27,628)	1,930,721	(1,166,423)	-	29,062,780

* Includes other funding sources

** Net of investment expenses

Table 9

Development of Actuarial Value of Assets

Item	FYE 2017	FYE 2016
1. Actuarial value of assets, beginning of year (without corridor)	$26,773,208	$24,633,859
2. Market value, end of year	$29,299,924	$25,391,547
3. Market value, beginning of year	$25,391,547	$23,202,291
4. Non-investment/administrative net cash flow:		
a. Employee contributions	$603,602	$588,791
b. Employer contributions	949,263	925,971
c. Other contributions	37	-
d. Refund of employee accounts	-	-
e. Retirement benefits	(1,166,423)	(981,321)
f. Administrative expenses	(27,628)	(23,218)
g. Total net cash flow: [sum of (4a) through (4f)]	$358,851	$510,223
5. Investments and securities lending:		
a. Interest and dividends on investments	$503,742	$488,997
b. Gross income from securities lending	24,045	10,802
c. Fees and expenses	(267,069)	(119,504)
d. Total net income: [sum of (5a) through (5c)]	$260,718	$380,295
6. Investment income:		
a. Actual market return: (2) - (3) - (4g) - (5d)	$3,288,808	$1,298,738
b. Assumed rate of return	7.75%	7.75%
c. Assumed amount of return	1,720,773	1,437,285
d. Amount subject to phase-in: (6a) - (6c)	$1,568,035	($138,547)
7. Phase-in recognition of investment income:		
a. Current year: 0.20 * (6d)	$313,607	($27,709)
b. First prior year	(27,709)	(404,447)
c. Second prior year	(404,447)	(125,264)
d. Third prior year	(125,264)	193,043
e. Fourth prior year	193,043	175,923
f. Total recognition	($50,770)	($188,454)
8. Actuarial value of assets, end of year		
a. Preliminary actuarial value of assets, end of year: (1) + (4g) + (5d) + (6c) + (7f)	$29,062,780	$26,773,208
b. Upper corridor limit: 120% * (2)	35,159,909	30,469,856
c. Lower corridor limit: 80% * (2)	23,439,939	20,313,238
d. Actuarial value of assets, end of year	$29,062,780	$26,773,208
9. Difference between market and actuarial value of assets	$237,144	($1,381,661)
10. Actuarial rate of return	7.16%	6.55%
11. Market rate of return*	14.20%	7.60%
12. Ratio of actuarial value to market value of assets	99.19%	105.44%

* Current year market rate of return is based on unaudited data and is supplied by the plan's investment

Table 10

History of Investment Returns

Plan Year (1)	Market (2)	Actuarial (3)
2000	-0.99%	5.92%
2001	-4.47%	4.26%
2002	-9.29%	2.42%
2003	21.00%	5.44%
2004	11.54%	7.45%
2005	8.22%	8.14%
2006	12.63%	9.73%
2007	7.44%	9.86%
2008	-29.63%	-12.60%
2009	23.72%	16.47%
2010	13.80%	3.71%
2011	-0.90%	2.21%
2012	14.05%	3.37%
2013	13.53%	11.09%
2014	4.70%	8.54%
2015	-0.26%	5.87%
2016	7.60%	6.55%
2017	14.20%	7.16%
Average returns:		
Last five years:	7.82%	7.74%
Last ten years:	5.02%	4.94%

The market returns above are gross of investment expenses and were provided by the plan's investment consultant. The actuarial returns above are based on the financial information provided by the plan's auditors.

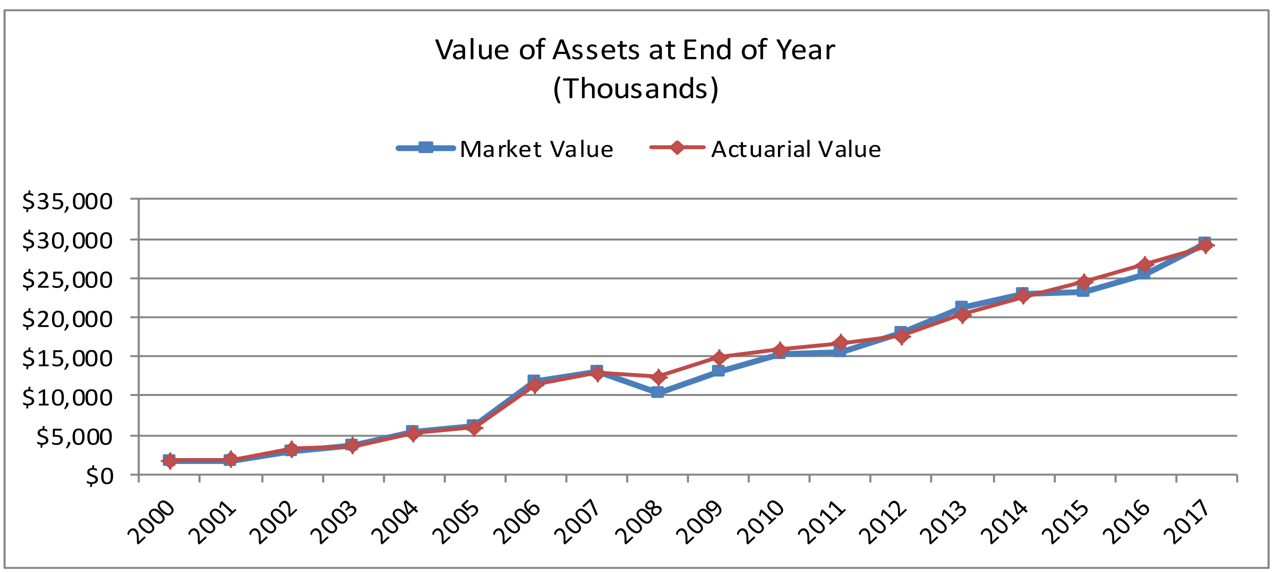

Table 11

Solvency Test

Valuation Date January 1	Total Active Member Contributions (1)	Inactive and Pensioner Liability (2)	Employer Financed Active Accrued Liability (3)	Actuarial Value of Assets	Percentage of Liabilities Covered by Assets (1)	(2)	(3)
2005	$1,315,893	$3,204,400	$4,305,907	$5,187,994	100%	100%	15.5%
2006	1,704,433	3,106,000	4,666,267	5,883,332	100%	100%	23.0%
2007	1,948,045	4,270,900	4,724,055	11,355,469	100%	100%	100.0%
2008	2,503,079	4,225,100	5,793,021	12,827,215	100%	100%	100.0%
2009	2,835,546	4,818,490	4,540,264	12,344,413	100%	100%	100.0%
2010	3,296,295	5,454,014	5,016,719	14,891,904	100%	100%	100.0%
2011	3,759,606	5,539,108	5,357,937	15,907,700	100%	100%	100.0%
2012	4,309,632	5,519,507	5,828,708	16,747,907	100%	100%	100.0%
2013	4,845,995	5,300,102	6,779,122	17,549,360	100%	100%	100.0%
2014	5,202,705	6,681,945	7,779,758	20,260,811	100%	100%	100.0%
2015	5,799,958	7,658,928	7,784,114	22,728,268	100%	100%	100.0%
2016	6,234,876	9,045,880	7,723,803	24,633,859	100%	100%	100.0%
2017	7,018,765	8,859,774	8,580,794	26,773,208	100%	100%	100.0%
2018	6,833,476	12,686,290	9,567,325	29,062,780	100%	100%	99.7%

Effective January 1, 2010, liabilities are calculated assuming no future cost-of-living increases.

Table 12

Schedule of Funding Progress

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Valuation Date January 1	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Unfunded AAL (UAAL) [(3) - (2)]	Funded Ratio [(2)/(3)]	Covered Payroll	UAAL as a Percentage of Covered Payroll [(4)/(6)]
2001	$1,688,823	$5,451,300	$3,762,477	30.98%	$1,992,400	188.84%
2002	1,886,018	6,479,300	4,593,282	29.11%	2,349,900	195.47%
2003	3,244,316	6,575,100	3,330,784	49.34%	2,363,000	140.96%
2004	3,636,994	8,371,700	4,734,706	43.44%	3,066,500	154.40%
2005	5,187,994	8,826,200	3,638,206	58.78%	3,059,900	118.90%
2006	5,883,332	9,775,300	3,891,968	60.19%	3,493,900	111.39%
2007	11,355,469	11,091,300	(264,169)	102.38%	3,591,300	-7.36%
2008	12,827,215	12,725,300	(101,915)	100.80%	4,122,100	-2.47%
2009	12,344,413	15,401,500	3,057,087	80.15%	4,401,600	69.45%
2010	14,891,904	13,767,028	(1,124,876)	108.17%	4,664,111	-24.12%
2011	15,907,700	14,656,651	(1,251,049)	108.54%	4,866,692	-25.71%
2012	16,747,907	15,657,847	(1,090,060)	106.96%	4,861,758	-22.42%
2013	17,549,360	16,925,219	(624,141)	103.69%	5,410,651	-11.54%
2014	20,260,811	19,664,408	(596,403)	103.03%	6,213,775	-9.60%
2015	22,728,268	21,243,000	(1,485,268)	106.99%	6,601,641	-22.50%
2016	24,633,859	23,004,559	(1,629,300)	107.08%	6,624,052	-24.60%
2017	26,773,208	24,459,333	(2,313,875)	109.46%	6,625,476	-34.92%
2018	29,062,780	29,087,091	24,311	99.92%	6,820,351	0.36%

Effective January 1, 2010, liabilities are calculated assuming no future cost-of-living increases.

Table 13

Schedule of Contributions from the Employer(s) and Other Contributing Entities

(1)	(2)	(3)	(4)	(5)	(6)
Fiscal Year Ending December 31	Actuarially Determined Contribution		Employer Contributions		Percentage of Actuarially Determined Contribution Contributed
	% of Payroll	Amount	% of Payroll	Amount	[(5)/(3)]
2004	8.75%	$268,300	41.08%	$1,259,619	469.48%
2005	9.03%	276,300	7.88%	241,273	87.32%
2006	8.78%	306,600	133.45%	4,662,777	1520.80%
2007	8.78%	315,200	10.31%	370,372	117.50%
2008	8.78%	362,100	31.75%	1,308,816	361.45%
2009	14.50%	638,400	14.64%	644,302	100.92%
2010	8.78%	409,105	14.22%	663,375	162.15%
2011	8.40%	409,031	13.86%	674,598	164.93%
2012	8.69%	422,266	12.55%	610,039	144.47%
2013	9.42%	509,643	16.01%	866,286	169.98%
2014	9.60%	596,723	14.75%	916,598	153.61%
2015	8.93%	589,177	13.95%	920,867	156.30%
2016	8.75%	579,926	13.98%	925,971	159.67%
2017	8.20%	543,468	14.33%	949,300	174.67%
2018	13.34%	909,557	-	-	-

Effective January 1, 2010, liabilities are calculated assuming no future cost-of-living increases.

Table 14

Reconciliation of Participant Data

	Active Participants	Vested Former Participants	Retired Participants	Disableds	Beneficiaries	Participants Due Refunds	Total
Number as of January 1, 2017	**46**	**-**	**15**	**-**	**3**	**-**	**64**
New participants	5	-	-	-	-	-	5
Vested terminations	-	-	-	-	-	-	-
Retirements	(4)	-	4	-	-	-	-
Disability	-	-	-	-	-	-	-
Deceased with beneficiary	-	-	-	-	-	-	-
Deceased without beneficiary	-	-	-	-	-	-	-
Due refunds	-	-	-	-	-	-	-
Lump sum payoffs	-	-	-	-	-	-	-
Rehires/return to active	-	-	-	-	-	-	-
Certain period expired	-	-	-	-	-	-	-
Reclassifications	-	-	-	-	-	-	-
Data corrections	-	-	-	-	-	-	-
Number as of January 1, 2018	**47**	**-**	**19**	**-**	**3**	**-**	**69**

Table 15

Demographic Statistics

	January 1 2018	January 1 2017	Change
Active Participants			
Number	47	46	2.2%
Vested	*35*	*36*	
Not vested	*12*	*10*	
Average age (years)	58.36	58.96	-1.0%
Average service (years)	9.85	10.44	-5.7%
Average entry age (years)	48.51	48.52	0.0%
Total payroll*	$6,820,351	$6,625,476	2.9%
Average payroll*	$145,114	$144,032	0.8%
Total employee contributions with interest	$6,833,476	$7,018,765	-2.6%
Average employee contributions with interest	$145,393	$152,582	-4.7%
Vested Former Participants			
Number	0	0	0.0%
Average age (years)	0.00	0.00	
Total employee contributions with interest	$0	$0	
Average employee contributions with interest	N/A	N/A	
Service Retirees			
Number	19	15	26.7%
Average age (years)	73.2	73.9	-1.0%
Total annual benefits	$1,199,936	$892,311	34.5%
Average annual benefit	$63,155	$59,487	6.2%
Disability Retirees			
Number	0	0	0.0%
Average age (years)	0.0	0.0	
Total annual benefits	$0	$0	
Average annual benefit	N/A	N/A	
Beneficiaries			
Number	3	3	0.0%
Average age (years)	78.3	77.3	1.3%
Total annual benefits	$89,010	$89,010	0.0%
Average annual benefit	$29,670	$29,670	0.0%
Participants Due Refunds	0	0	0.0%

* Projected payroll for the upcoming valuation year

Table 16

Distribution of Male Active Members by Age and by Years of Service

Average Age = 59.6 Average Service = 10.4

Age Last Birthday		Whole Years of Service at Valuation Date 0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	Totals
Less than 20	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
20-24	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
25-29	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
30-34	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
35-39	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
40-44	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
45-49	Count	5	-	1	-	-	-	-	6
	Avg. Salary	$133,113	-	*	-	-	-	-	$135,901
50-54	Count	1	1	-	-	-	-	-	2
	Avg. Salary	*	*	-	-	-	-	-	*
55-59	Count	4	1	3	-	-	-	-	8
	Avg. Salary	128,916	*	*	-	-	-	-	132,385
60-64	Count	1	2	2	6	-	1	-	12
	Avg. Salary	*	*	*	$135,854	-	*	-	141,690
65-69	Count	-	3	-	4	1	-	-	8
	Avg. Salary	-	*	-	150,338	*	-	-	144,969
70 & Over	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
Totals	Count	**11**	**7**	**6**	**10**	**1**	**1**	**-**	**36**
	Avg. Salary	**$134,546**	**$143,988**	**$135,854**	**$141,648**	*****	*****	**-**	**$139,839**

Average Salary represents annualized salary earned in 2017 and is not shown for cells with counts less than or equal to three participants.

Table 17

Distribution of Female Active Members by Age and by Years of Service

Average Age = 54.1 Average Service = 7.9

Age Last Birthday		Whole Years of Service at Valuation Date							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
Less than 20	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
20-24	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
25-29	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
30-34	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
35-39	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
40-44	Count	3	-	-	-	-	-	-	3
	Avg. Salary	*	-	-	-	-	-	-	*
45-49	Count	-	2	-	-	-	-	-	2
	Avg. Salary	-	*	-	-	-	-	-	*
50-54	Count	-	1	-	-	-	-	-	1
	Avg. Salary	-	*	-	-	-	-	-	*
55-59	Count	-	1	-	-	-	-	-	1
	Avg. Salary	-	*	-	-	-	-	-	*
60-64	Count	1	-	-	-	1	-	-	2
	Avg. Salary	*	-	-	-	*	-	-	*
65-69	Count	-	-	1	1	-	-	-	2
	Avg. Salary	-	-	*	*	-	-	-	*
70 & Over	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
Totals	Count	**4**	**4**	**1**	**1**	**1**	**-**	**-**	**11**
	Avg. Salary	**$146,711**	**$135,854**	*****	*****	*****	**-**	**-**	**$138,531**

Average Salary represents annualized salary earned in 2017 and is not shown for cells with counts less than or equal to three participants.

Table 18

Distribution of Total Active Members by Age and by Years of Service

Average Age = 58.4 Average Service = 9.9

Age Last Birthday		Whole Years of Service at Valuation Date: 0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	Totals
Less than 20	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
20-24	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
25-29	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
30-34	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
35-39	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
40-44	Count	3	-	-	-	-	-	-	3
	Avg. Salary	*	-	-	-	-	-	-	*
45-49	Count	5	2	1	-	-	-	-	8
	Avg. Salary	$133,113	*	*	-	-	-	-	$139,385
50-54	Count	1	2	-	-	-	-	-	3
	Avg. Salary	*	*	-	-	-	-	-	*
55-59	Count	4	2	3	-	-	-	-	9
	Avg. Salary	128,916	*	*	-	-	-	-	131,217
60-64	Count	2	2	2	6	1	1	-	14
	Avg. Salary	*	*	*	$135,854	*	*	-	141,926
65-69	Count	-	3	1	5	1	-	-	10
	Avg. Salary	-	*	*	150,239	*	-	-	143,146
70 & Over	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
Totals	Count	**15**	**11**	**7**	**11**	**2**	**1**	**-**	**47**
	Avg. Salary	**$137,790**	**$141,030**	**$133,856**	**$142,392**	*	*	**-**	**$139,533**

Average Salary represents annualized salary earned in 2017 and is not shown for cells with counts less than or equal to three participants.

Table 19

Schedule of Pension Recipients Added to and Removed from Rolls

Fiscal Year Ending December 31	Added to Rolls*		Removed from Rolls		Total		Percent Increase in Annual Pension Benefits	Average Annual Pension Benefit
	Count	Annual Pension Benefits	Count	Annual Pension Benefits	Count	Annual Pension Benefits		
2008	2	$137,212	0	($11,043)	9	$544,096	37.45%	$60,455
2009	1	72,878	0	0	10	616,974	13.39%	61,697
2010	3	127,495	2	133,897	11	610,572	-1.04%	55,507
2011	0	0	0	0	11	610,572	0.00%	55,507
2012	0	0	0	0	11	610,572	0.00%	55,507
2013	2	113,010	0	0	13	723,582	18.51%	55,660
2014	3	107,248	0	0	16	830,830	14.82%	51,927
2015	2	150,491	0	0	18	981,321	18.11%	54,518
2016	0	0	0	0	18	981,321	0.00%	54,518
2017	4	307,625	0	0	22	1,288,946	31.35%	58,588

* Includes cost-of-living increases

Table 20

Pensioners by Age

Average Age Male = 74.3 Average Age Female = 72.8 Average Age Total = 73.9

Age Last Birthday	Males	Females	Total
Under 50	0	0	0
50-54	0	0	0
55-59	0	0	0
60-64	0	1	1
65-69	5	2	7
70-74	3	2	5
75-79	5	0	5
80-84	1	2	3
85 & over	1	0	1
Total	**15**	**7**	**22**

Table 21

Pensions Awarded in 2017

Average Age = 65.9

Males & Females	
Benefit Amount	**Total**
Under $200	0
$200-$399	0
$400-$599	0
$600-$799	0
$800-$999	0
$1,000-$1,499	0
$1,500-$1,999	0
$2,000-$2,499	0
$2,500 & over	4
Total	**4**

Males & Females	
Age Last Birthday	**Total**
Under 50	0
50-54	0
55-59	0
60-64	0
65-69	4
70-74	0
75-79	0
80-84	0
85 & over	0
Total	**4**

Table 22

Retirees and Disabled Members by Service at Retirement and Years Since Retirement

Average Service at Retirement = 16.8 Average Years Since Retirement = 6.8

Service at Retirement		Years Elapsed Since Retirement							
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	Totals
Less than 5	Count	-	-	-	-	-	-	-	-
	Avg. Benefit	-	-	-	-	-	-	-	-
5-9	Count	1	-	-	-	-	-	-	1
	Avg. Benefit	$3,783	-	-	-	-	-	-	$3,783
10-14	Count	4	-	1	-	-	-	-	5
	Avg. Benefit	4,059	-	$3,014	-	-	-	-	3,850
15-19	Count	3	1	1	1	-	-	-	6
	Avg. Benefit	6,772	$5,046	4,934	$4,658	-	-	-	5,826
20-24	Count	2	2	1	1	-	-	-	6
	Avg. Benefit	7,178	5,779	5,145	4,998	-	-	-	6,010
25-29	Count	-	1	-	-	-	-	-	1
	Avg. Benefit	-	5,950	-	-	-	-	-	5,950
30-34	Count	-	-	-	-	-	-	-	-
	Avg. Benefit	-	-	-	-	-	-	-	-
35 & Over	Count	-	-	-	-	-	-	-	-
	Avg. Benefit	-	-	-	-	-	-	-	-
Totals	Count	**10**	**4**	**3**	**2**	**-**	**-**	**-**	**19**
	Avg. Benefit	**$5,469**	**$5,638**	**$4,365**	**$4,828**	**-**	**-**	**-**	**$5,263**

Table 23

Retirees and Disableds by Year of Retirement

January 1, 2018 Total = 19

Year of Retirement	Count
Under 2000	0
2000	1
2001	1
2002	0
2003	0
2004	1
2005	0
2006	1
2007	1
2008	2
2009	1
2010	1
2011	0
2012	0
2013	2
2014	2
2015	2
2016	0
2017*	4

**May include retirements as of January 1, 2018*

Table 24

Thirty Year Projected Benefit Payments

Year Ending December 31	Actives	Retirees*	Total
2018	$ 70,277	$ 1,279,833	$ 1,350,110
2019	214,771	1,260,218	1,474,989
2020	419,493	1,239,011	1,658,504
2021	652,119	1,216,148	1,868,267
2022	916,645	1,191,587	2,108,232
2023	1,147,013	1,165,305	2,312,317
2024	1,399,361	1,137,292	2,536,653
2025	1,683,844	1,107,554	2,791,398
2026	1,933,525	1,076,110	3,009,635
2027	2,195,025	1,042,996	3,238,020
2028	2,379,490	1,008,263	3,387,753
2029	2,512,075	971,979	3,484,054
2030	2,653,161	934,225	3,587,386
2031	2,833,114	895,103	3,728,217
2032	2,961,956	854,744	3,816,701
2033	3,010,911	813,297	3,824,208
2034	3,088,375	770,912	3,859,287
2035	3,165,089	727,726	3,892,815
2036	3,215,947	683,885	3,899,831
2037	3,336,204	639,555	3,975,759
2038	3,438,464	594,925	4,033,388
2039	3,470,949	550,211	4,021,160
2040	3,577,507	505,671	4,083,177
2041	3,714,081	461,589	4,175,670
2042	3,776,235	418,294	4,194,529
2043	3,781,738	376,148	4,157,886
2044	3,776,099	335,511	4,111,610
2045	3,721,663	296,732	4,018,395
2046	3,683,469	260,149	3,943,618
2047	3,628,299	226,055	3,854,354

* Includes Disabled Members, Beneficiaries, and Deferred Vested Members. Retirement benefit payments for deferred vested members are assumed to commence at age 65.

APPENDIX A

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Summary of Actuarial Assumptions and Methods

The following methods and assumptions were used in preparing the January 1, 2018 actuarial valuation report.

1. Valuation Date

   The valuation date for any given year is January 1st, the first day of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

2. Actuarial Cost Method

   The actuarial valuation uses the Entry Age Normal (EAN) actuarial cost method, amortized as a level percentage of payroll. Under this method, the employer contribution rate is the sum of (i) the employer normal cost rate, and (ii) the rate that will amortize the unfunded actuarial accrued liability (UAAL).

   a. The valuation is prepared on the projected benefit basis, under which the present value, at the investment return rate assumed to be earned in the future (currently 7.00%), of each participant's expected benefit payable at retirement or death is determined, based on his/her age, service, sex and compensation. The calculations take into account the probability of a participant's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his/her terminating with a service, disability, or survivor's benefit. Future salary increases are also anticipated. The present value of the expected benefits payable for the active participants is added to the present value of the expected future payments to retired participants and beneficiaries to obtain the present value of all expected benefits payable from the Fund on account of the present group of participants and beneficiaries.

   b. The employer contributions required to support the benefits of the Fund are determined using a level funding approach, and consist of a normal cost contribution and a unfunded accrued liability contribution.

   c. The normal cost contribution is determined using the "entry age normal" actuarial cost method. Under this method, a calculation is made to determine the average uniform and constant percentage rate of employer contribution which, if applied to the compensation of each new participant during the entire period of his/her anticipated covered service, would be required to meet the cost of all benefits payable on his/her behalf based on the benefits provisions applicable for the individual member.

   d. The unfunded actuarial accrued liability contributions are determined by subtracting the actuarial value of assets from the actuarial accrued liability and amortizing the result over 15 years from the valuation date.

3. Actuarial Value of Assets

The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (less than) expected investment income, with interest, dividends, and other income recognized immediately. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of administrative and investment expenses. An adjustment is made if the actuarial value is not within 20% of the Market Value. For any year following a year in which the 20% of market value adjustment was applied, the actuarial value is determined as if the adjustment was not applied in the previous year.

4. Economic Assumptions

a. Investment return

7.00% per year, compounded annually, composed of an assumed 2.25% inflation rate and a 4.75% net real rate of return. This rate represents the assumed return, net of investment expenses.

b. Salary increase rate

4.00% per annum

c. Payroll growth rate

In the amortization of the unfunded actuarial accrued liability, payroll is assumed to increase 4.00% per year. This increase rate is solely due to the effect of inflation on salaries, with no allowance for future membership growth.

d. Cost-of-Living adjustment

No cost-of-living adjustment is assumed since the policy for providing the benefit requires Board approval to make the recommendation to the Joint Appropriations Committee and the funded level of the plan shows a cost-of-living requirement would not be permitted.

5. Demographic Assumptions

a. Mortality

Healthy Pre-Retirement Mortality:
RP-2014 Employee Mortality Table, fully generational, projected with Scale MP-2017
Males: No set back with a multiplier of 100%
Females: No set back with a multiplier of 100%
Healthy Post-Retirement Mortality:
RP-2014 Healthy Annuitant Table, fully generational, projected with Scale MP-2017
Males: No set back with a multiplier of 100%
Females: No set back with a multiplier of 88%
Disabled Mortality
RP-2014 Disabled Mortality Table, fully generational, projected with Scale MP-2017
Males: No set back with a multiplier of 100%
Females: No set back with a multiplier of 100%

Age	Pre-Retirement		Post-Retirement		Disabled	
	Projected to 2018 using Scale MP-2017					
	Male	Female	Male	Female	Male	Female
20	0.04%	0.02%	0.04%	0.01%	0.05%	0.02%
25	0.05%	0.02%	0.06%	0.03%	0.20%	0.09%
30	0.05%	0.02%	0.09%	0.06%	0.51%	0.24%
35	0.06%	0.03%	0.13%	0.09%	0.91%	0.45%
40	0.06%	0.04%	0.19%	0.14%	1.31%	0.68%
45	0.09%	0.06%	0.27%	0.18%	1.63%	0.90%
50	0.16%	0.11%	0.39%	0.24%	1.94%	1.16%
55	0.27%	0.17%	0.56%	0.32%	2.28%	1.46%
60	0.47%	0.25%	0.78%	0.47%	2.68%	1.74%
65	0.83%	0.36%	1.11%	0.70%	3.19%	2.06%
70	1.35%	0.61%	1.64%	1.09%	3.94%	2.71%
75			2.58%	1.77%	5.23%	3.95%
80			4.31%	2.98%	7.38%	5.94%
85			7.50%	5.22%	10.97%	8.86%
90			13.21%	9.25%	16.82%	13.02%
95			21.17%	15.41%	23.94%	19.15%
100			30.66%	23.44%	31.90%	27.35%

b. Disability and Withdrawal

Age	Disability		Withdrawal	
			Ultimate	
	Male	Female	Male	Female
20	0.01%	0.01%	5.60%	5.60%
25	0.01%	0.01%	4.20%	4.20%
30	0.01%	0.01%	2.90%	2.90%
35	0.01%	0.01%	2.00%	2.00%
40	0.01%	0.01%	1.50%	1.50%
45	0.01%	0.01%	1.10%	1.10%
50	0.03%	0.03%	0.80%	0.80%
55	0.05%	0.05%	0.60%	0.60%
60	0.07%	0.07%	0.40%	0.40%

c. Retirement Rates

Age	Rate	Age	Rate
55	2%	64	2%
56	2%	65	15%
57	2%	66	10%
58	2%	67	10%
59	2%	68	10%
60	2%	69	10%
61	2%	70	15%
62	2%	71	15%
63	2%	72	100%

6. Other Assumptions

a. Percent married: 85.00% of employees are assumed to be married. (No beneficiaries other than the spouse assumed.)

b. Age difference: Male members are assumed to be three years older than their spouses, and female members are assumed to be three years younger than their spouses.

c. Percent electing annuity on death (when eligible): All of the spouses of vested, married participants are assumed to elect an annuity.

d. Percent electing deferred termination benefit: Vested terminating members are assumed to elect a refund or a deferred benefit, whichever is more valuable at the time of termination.

e. Assumed age for commencement of deferred benefits: Members electing to receive a deferred benefit are assumed to commence receipt at the first age at which unreduced benefits are available, which for this plan is age 65.

f. No benefit amount data is available for members entitled to deferred benefits. The benefit is estimated using the final average compensation and service provided by WRS.

g. There will be no recoveries once disabled.

h. Administrative expenses: Average of actual expenses for the prior two years, with each year projected at 2.50% to the valuation date.

i. Pay increase timing: Beginning of (fiscal) year. This is equivalent to assuming that reported pay represents amount paid to members during the year ended on the valuation date.

j. Decrement timing: Decrements of all types are assumed to occur mid-year.

k. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.

l. Incidence of Contributions**:** Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in the report, and the actual payroll payable at the time contributions are made.

m. Benefit Service: All members are assumed to accrue one year of service each year.

APPENDIX B

SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions

Covered Members	Any justice of the supreme court, district judge appointed or circuit court judge appointed to any of those offices on or after July 1, 1998, or who elects to participate in the judicial retirement program under this act in accordance with W.S. 9-3-713.
Final Average Salary	Employee's average annual salary for the highest paid three continuous years of service.
Form of Payment	Monthly benefit for life. Upon death, 50% of the benefit continues to be paid to the beneficiary.
Service Retirement	
Eligibility	Age 70 with continuous service from appointment, age 65 with four or more years of service, or age 60 with 20 or more years of service.
Monthly Benefit	Highest Average Salary times the sum of the following: a) 4% for each of the first five years of service, b) 3% for each year from and including the sixth year through the fifteenth year of service, c) 2% for each year from and including the sixteenth year through the twentieth year of service, d) 1% for each year thereafter.
Vesting	Any employee who has left employment with four or more years of service, and who has not withdrawn accumulated contributions, is eligible to receive the above benefit or can elect to receive a lump-sum refund of contributions with interest. An employee who terminates with less than four years of service and has not served continuously from the date of appointment to the age of 70 is only eligible for the lump-sum benefit.
Early Retirement	A member who is at least age 55 with four or more years of service may retire with the benefits described above reduced five percent for each year of retirement prior to age 65.
Disability Retirement	
Eligibility	Retirement by reason of permanent disability after completion of at least 10 years of service.
Monthly Benefit	Service retirement benefit determined as of the disability retirement date.
Pre-Retirement Death	
Eligibility	No age or service requirements.

Benefit	A lump sum equal to two times the employee contributions with interest. If the employee is vested, the beneficiary can elect, in lieu of this lump sum, to receive a monthly benefit equal to the actuarial equivalent of the retirement benefit that would be due the employee as if the member had terminated on the date of death.

Contributions

Employee	9.22% of salary.
Employer	14.50% of salary.
Interest	3.00% annually.

Cost-of-Living Improvements	W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change.